

ELEMENTAL COMPOSITION OF MINERAL CONSTITUENTS FROM ADHI KOT EH4 CHONDRITE. Z. A. Lavrentjeva, V. I. Vernadsky Institute of Geochemistry and Analytical Chemistry, Russian Academy of Sciences, Moscow, Russia.

In the present paper the results of elemental abundances in different grain-sized main mineral fractions of enstatite chondrite Adhi Kot are reported. The fractions were isolated by methods of physical separation and their elemental composition was determined by instrumental neutron activation analysis. Table 1 shows the average elemental enrichment factors relative to CI chondrite [1] for 14 separate unmagnetic fractions.

The mineral fractions of A ($45 < d < 71 \mu$), B ($35 < d < 45 \mu$), C ($35 < d < 45 \mu$, the purest troilite) and D ($10 < d < 35 \mu$) have density $\rho > 4.18 \text{ g cm}^{-3}$; the fractions of E ($10 < d < 35 \mu$), F ($25 < d < 35 \mu$), and G ($10 < d < 45 \mu$) have density $\rho < 4.18 \text{ g cm}^{-3}$; the fractions of H ($1 < d < 25 \mu$) and K ($35 < d < 45 \mu$) have density $2.9 < \rho < 3.0 \text{ g cm}^{-3}$; the fraction of L ($1 < d < 45 \mu$) has density $\rho < 2.9 \text{ g cm}^{-3}$; the fraction of M ($10 < d < 45 \mu$); O ($10 < d < 45 \mu$); P ($30 < d < 45 \mu$) hadn't separated by density.

The enrichment factors of siderophile Co, Ni, Ir, and Au in all fractions are less than 1. The enrichment factors of refractory lithophile element Sc in all fractions are also ≤ 1 ,

but the factors of Hf = $(9.3\text{--}87.5) \times \text{CI}$. The mineral fractions of Adhi Kot meteorite have Hf/Sc (0.149–4.5) and Sm/Sc (0.028–0.137) ratios much greater than cosmic. The separate fractions of various grain sizes have the Ca/Sc ratios: fraction B—9428, P—4308 (much greater than cosmic), O—1347, and F—420 (less than cosmic). The fractions with $\rho > 4.18$ are enriched in Cr (2.10–7.86) $\times \text{CI}$. Most part fractions are enriched in light REE: $[\text{La/La(CI)}]/[\text{Sm/Sm(CI)}] = 2.20$ (mean) and have a Eu maximum $[\text{Eu/Eu(CI)}]/[\text{Sm/Sm(CI)}] = 4.58$ (mean).

The 14 mineral fractions of Adhi Kot EH4 meteorite are enriched in the 8 refractory elements Ca, Sc, Hf, La, Sm, Eu, Yb, Lu by a mean factor of 3.72 relative to their abundances in CI chondrites, supporting the opinion that they are samples of high-temperature condensates from the solar nebula.

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References: [1] Anders E and Grevesse N. (1989) *GCA*, 53, 197–214.

TABLE 1. Average element enrichment factors for mineral fractions of Adhi Kot EH4 chondrite.

Fraction	Na	K	Cr	Sc	Br	Se	Zn	Fe	Ni	Co	As	Sb
A	0.19	0.32	7.86	0.33	0.31	10.8	0.35	2.32	0.10	0.15	0.13	
B	0.20	0.18	7.31	0.60	0.50	10.2	0.67	2.17	0.13	0.15	0.11	19.7
C	1.82	1.49	0.67	0.74	0.78	1.43	0.61	0.15	0.32	0.06		
D	0.72	0.63	2.10	0.79	2.30	5.11	0.90	0.60	<0.01	0.08	3.92	2.96
E	1.03		1.33	0.52	0.84	2.72	1.63	0.22		0.02		2.60
F	1.05		0.88	1.12	0.22	0.82	0.90	0.23	<0.01	0.02	0.75	0.63
G	1.46	2.06	0.10	0.38	0.56	0.65	0.26	0.02	0.01	0.01		
H	0.41	2.74	0.05	0.98	0.90	0.81	0.67		0.48	0.03	1.02	1.62
K	1.31	0.99	0.03	0.52	0.05	0.11	0.38	0.02	<0.01	0.01	0.16	1.12
L	1.75	1.83	0.23	0.41	1.15	0.35	0.87	0.06	0.08	0.03	0.59	0.35
M	0.29		0.03	0.24		0.33	3.46	0.03	0.02	0.01	0.75	8.45
N	1.50		0.14	0.60	0.11	0.17	0.38	0.05	0.04	0.02		2.46
O	1.03		1.33	0.79	0.22	1.18	1.47	0.59	0.31	0.12	0.27	1.41
P	2.19		1.30	1.12	0.08	1.57	1.54	0.40	0.05	0.06	0.17	1.34

Fraction	La	Sm	Eu	Yb	Lu	Ir	Cu	Cs	Ag	Ca	Hf	Au
A	0.19	0.37	2.32				9.13					
B	0.85	0.88	0.80			0.07		9.09	9.05	3.56		
C	3.20	0.68	8.57				3.17					
D	0.17	3.87	21.8						196			
E	2.81	1.84	2.68	0.86	0.58			2.94			0.22	
F	1.28	1.22	1.48	0.68	0.62	0.06		1.60		0.28		0.14
G	1.07	1.16	9.28			0.05		1.34				
H	3.83	1.77	27.1			0.33		13.9	16.1		87.5	
K	1.19	0.65	0.80			0.02		2.67	62.3		23.1	
L	8.95	2.24	4.46					1.07			72.0	
M	1.62	0.54	5.71					3.74	36.2		60.6	
N	0.94	0.14	0.20	0.29	0.45	0.08		4.55			0.14	
O	3.41	1.50	0.66	0.98	<0.82	0.67			0.67			
P	2.64	2.38	2.05	1.85	1.73	0.29			3.02	9.3	1.0	